SE EXP4 P-2-P RENTAL PLATFORM

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Aim:

Based on your class diagram, draw sequence and collaboration for 2 main use cases of your application.

The name of the classes and methods used in sequence diagram must exactly match class diagram

Show the interaction of actor with system and methods that are called internally

Problem Description:

This project seeks to build a robust, community-focused web platform that encourages the sharing and temporary rental of everyday items among local users. By connecting individuals who have unused resources with those in need, it aims to reduce waste, foster collaboration, and promote sustainable consumption. The platform emphasizes trust, transparency, and convenience to create an accessible and reliable environment for peer-to-peer borrowing and lending.

Theory:

Sequence Diagram

Definition:

A sequence diagram is a UML interaction diagram that shows how objects and actors

communicate with each other in a specific scenario, arranged in time sequence.

Explanation:

• Represents the dynamic behavior of a system.

• Objects (actors and system components) are placed horizontally at the top, while

time flows vertically downward.

• Lifelines represent the existence of an object during the interaction.

• Activation bars indicate the period an object is performing an operation.

• Messages (method calls, signals, returns) are represented by arrows.

• Used to visualize the step-by-step order of interactions between objects.

Collaboration Diagram

Definition:

A collaboration diagram (also called a communication diagram) is a UML interaction diagram that shows how objects interact with each other and are linked, focusing on the structural relationships among them.

Explanation:

• Emphasizes which objects are connected and how they collaborate.

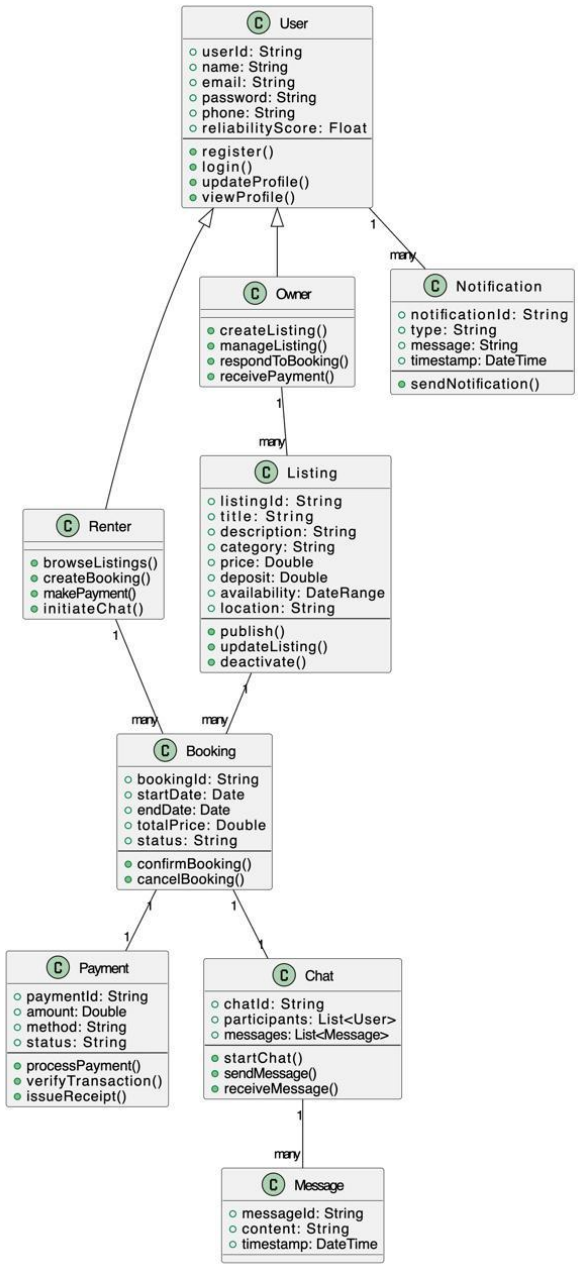
• Objects are drawn as nodes, connected by links (lines).

• Messages are shown along these links with sequence numbers (1, 1.1, 1.2 …) to indicate the order.

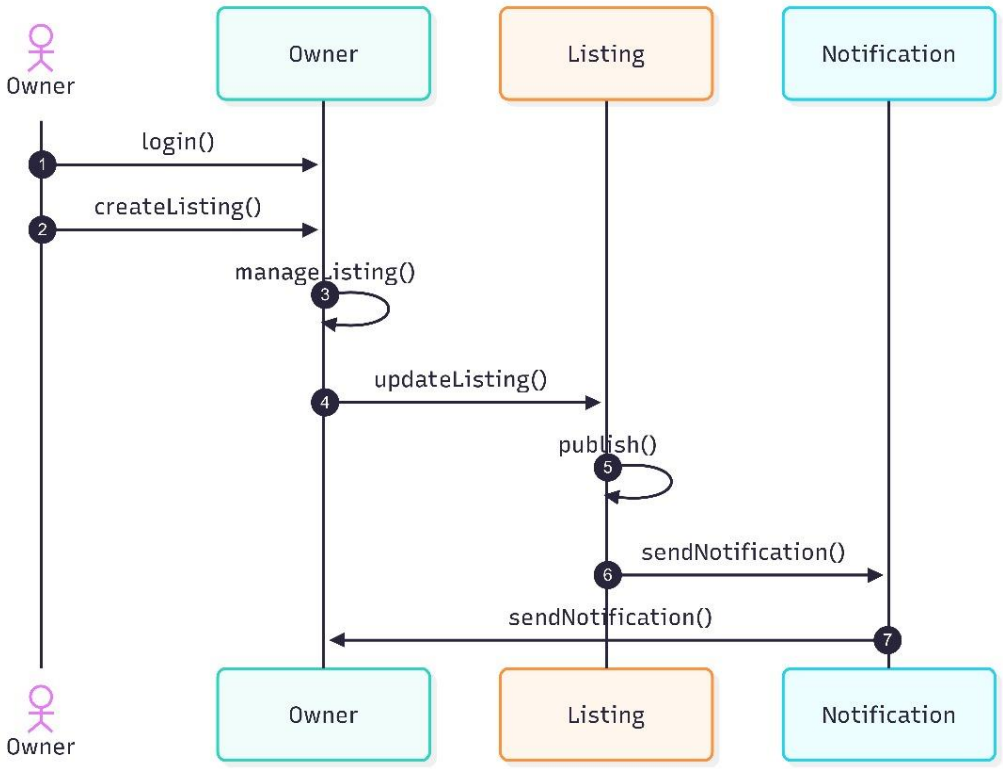
• Focuses on the roles and responsibilities of objects in carrying out a use case.

• Useful for understanding collaboration paths between objects, rather than strict time ordering.

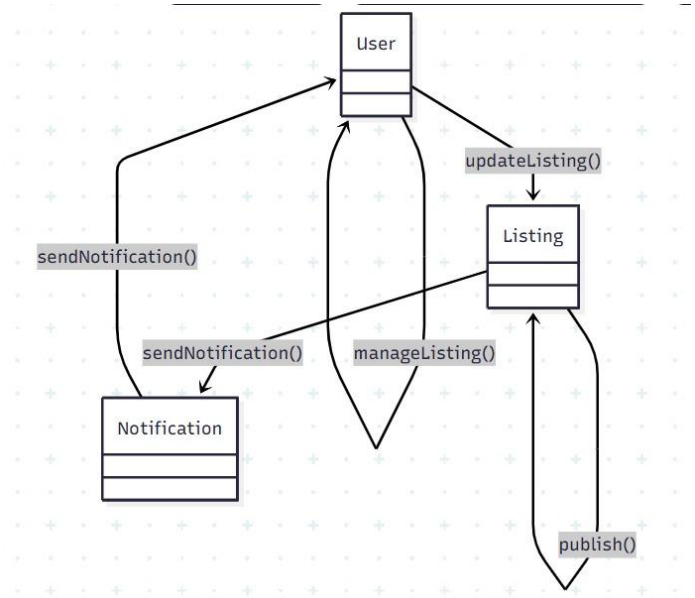
Updated Class Diagram



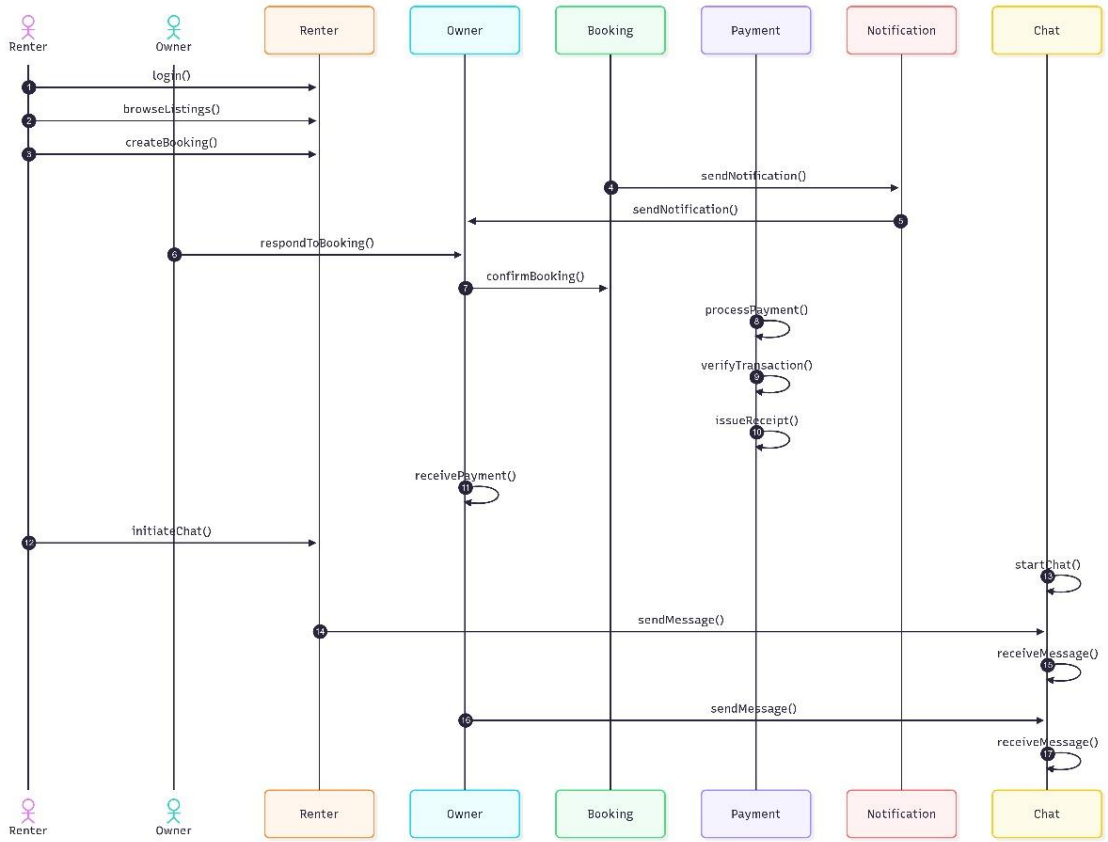
Sequence Diagram: Publish Listing (Owner)



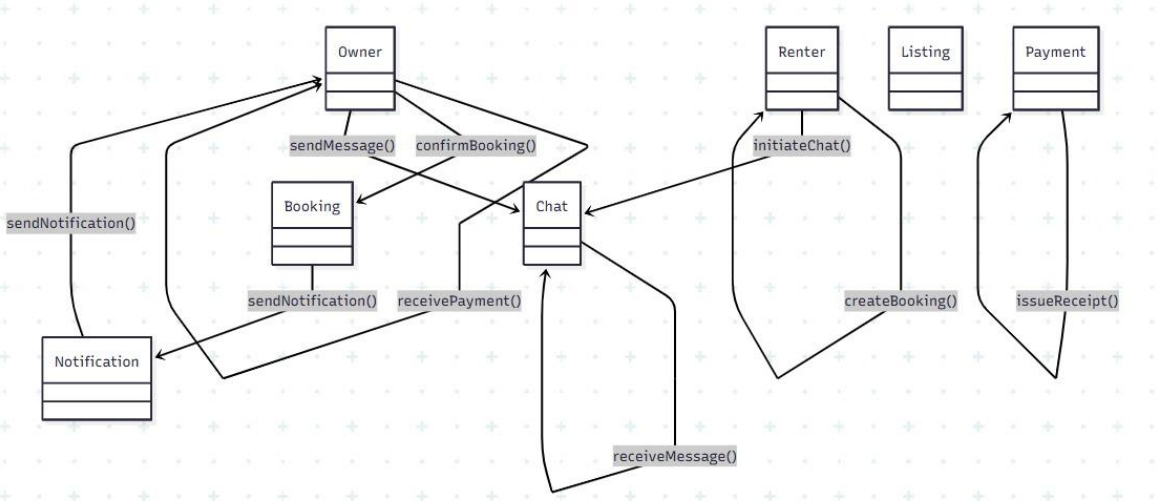
Collaboration Diagram: Publish Listing (Owner)



Sequence Diagram: Booking + Payment + Chat (Renter and Owner)



Collaboration Diagram: Booking + Payment + Chat (Renter and Owner)



Conclusion:

This project presents a peer-to-peer rental platform designed to promote sustainable consumption by enabling local item sharing and temporary rentals. It applies UML modeling, using sequence diagrams to capture the step-by-step interactions over time and collaboration diagrams to highlight object relationships and message flows. Through detailed class,

sequence, and collaboration diagrams for key use cases like publishing a listing and booking with payment, the system’s dynamic behavior and structural links are clearly illustrated.